NAK1-BP72

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Application of:	Examiner:
Masaki Aoki et al.	Group Art Unit:
Serial No.:	
Filed:	August 13, 2001
For: PLASMA DISPLAY PANEL AND MANUFACTURING METHOD FOR THE SAME	Irvine, California 92614

PRELIMINARY AMENDMENT

Assistant Commissioner for Patents
Washington, D.C. 20231

Dear Sir:

Prior to an examination on the merits of the above-identified application, please enter the following amendments:

IN THE CLAIMS:

Please amend the claims as follows:

6. (Amended) The plasma display panel of Claim 1,

wherein the first electrodes are constructed by forming each electrode on a transparent electrode film.

7. (Amended) The plasma display panel of Claim 1,

wherein the first electrodes are covered with a dielectric layer made of a dielectric glass material.

13. (Amended) The plasma display panel of Claim 8,

wherein the first electrodes are covered with a dielectric layer made of a dielectric glass material.

17. (Amended) The plasma display panel of Claim 14,

wherein the metal or the metal oxide that coats the surface of each Ag particle forms a layer with an average thickness in a range of 01 μm to 1μm inclusive.

18. (Amended) The plasma display panel of Claim 14,

wherein the first electrodes are covered with a dielectric layer made of a dielectric glass material.

21. (Amended) The plasma display panel of Claim 19,

wherein the first plate, or both the first plate and the second plate are glass plates.

22. (Amended) A display apparatus comprising:

the plasma display panel of Claim 1; and

a driving circuit that drives the plasma display panel.

31. (Amended) The manufacturing method for a plasma display panel of Claim 29, wherein in the electrode formation step, the electrodes made of the silver alloy are formed, by forming the silver alloy into a film by a sputtering method, and patterning the formed film.

32. (Amended) The manufacturing method for a plasma display panel of Claim 29, wherein in the electrode formation step, the electrodes made of the silver alloy are formed, by (a) forming a film containing the silver alloy and a glass frit, (b) patterning the formed film, and (c) baking the patterned film.

34. (Amended) The manufacturing method for a plasma display panel of Claim 29, wherein in the electrode formation step, the electrodes made of the silver alloy are formed, by applying a paste containing the silver alloy and a glass frit in electrode shapes, and baking the applied paste.

48. (Amended) The manufacturing method for a substrate for use in a plasma display panel of Claim 46,

wherein in the etching step, the glass plate is etched by impregnating the surface of the glass plate with a liquid containing fluorine.

49. (Amended) The manufacturing method for a substrate for use in a plasma display panel of Claim 46,

wherein in the etching step, the glass plate is etched so that a concentration of metal ions that exist in a vicinity of a surface of the etched substrate is 1000ppm or less, the metal ions possessing reducing action on Ag ions.

50. (Amended) The manufacturing method for a substrate for use in a plasma display panel of Claim 46,

wherein in the etching step, the glass plate is etched so that a total concentration of tin with less than four valence electrons, manganese with less than four valence electrons, iron with less than two valence electrons, and indium with less than two valence electrons that exist in a vicinity of a surface of the etched substrate is 1000ppm or less.

51. (Amended) The manufacturing method for a substrate for use in a plasma display panel of Claim 46,

wherein the etching step is followed by a polishing step for polishing the surface of the etched substrate.

55. (Amended) The manufacturing method for a substrate for use in a plasma display panel of Claim 52,

wherein in the deactivating step, the glass plate is processed so that a total concentration of tin with less than four valence electrons, manganese with less than four valence electrons, iron with less than two valence electrons, and indium with less than two valence electrons that exist in a region of 5μm in depth from a surface of the substrate is 1000ppm or less.

Please add the following newly-drafted Claims 56-90.

56. (New) The plasma display panel of Claim 2,

wherein the first electrodes are constructed by forming each electrode on a transparent electrode film.

57. (New) The plasma display panel of Claim 3,

wherein the first electrodes are constructed by forming each electrode on a transparent electrode film.

58. (New) The plasma display panel of Claim 4,

wherein the first electrodes are constructed by forming each electrode on a transparent electrode film.

59. (New) The plasma display panel of Claim 5,

wherein the first electrodes are constructed by forming each electrode on a transparent electrode film.

60. (New) The plasma display panel of Claim 2,

wherein the first electrodes are covered with a dielectric layer made of a dielectric glass material.

61. (New) The plasma display panel of Claim 3,

wherein the first electrodes are covered with a dielectric layer made of a dielectric glass material.

62. (New) The plasma display panel of Claim 4,

wherein the first electrodes are covered with a dielectric layer made of a dielectric glass material.

63. (New) The plasma display panel of Claim 5,

wherein the first electrodes are covered with a dielectric layer made of a dielectric glass material.

64. (New) The plasma display panel of Claim 9,

wherein the first electrodes are covered with a dielectric layer made of a dielectric glass material.

65. (New) The plasma display panel of Claim 10,

wherein the first electrodes are covered with a dielectric layer made of a dielectric glass material.

66. (New) The plasma display panel of Claim 11,

wherein the first electrodes are covered with a dielectric layer made of a dielectric glass material.

67. (New) The plasma display panel of Claim 12,

wherein the first electrodes are covered with a dielectric layer made of a dielectric glass material.

68. (New) The plasma display panel of Claim 15,

wherein the metal or the metal oxide that coats the surface of each Ag particle forms a layer with an average thickness in a range of 01 μm to 1μm inclusive.

69. (New) The plasma display panel of Claim 16,

wherein the metal or the metal oxide that coats the surface of each Ag particle forms a layer with an average thickness in a range of 01 μm to 1μm inclusive.

70. (New) The plasma display panel of Claim 15,

wherein the first electrodes are covered with a dielectric layer made of a dielectric glass material.

71. (New) The plasma display panel of Claim 16,

wherein the first electrodes are covered with a dielectric layer made of a dielectric glass material.

72. (New) The plasma display panel of Claim 20,

wherein the first plate, or both the first plate and the second plate are glass plates.

73. (New) A display apparatus comprising:

the plasma display panel of Claim 3; and

a driving circuit that drives the plasma display panel.

74. (New) A display apparatus comprising:

the plasma display panel of Claim 8; and

a driving circuit that drives the plasma display panel.

75. (New) A display apparatus comprising:

the plasma display panel of Claim 10; and

a driving circuit that drives the plasma display panel.

76. (New) A display apparatus comprising:

the plasma display panel of Claim 14; and

a driving circuit that drives the plasma display panel.

77. (New) A display apparatus comprising:

the plasma display panel of Claim 19; and

a driving circuit that drives the plasma display panel.

78. (New) A display apparatus comprising:

the plasma display panel of Claim 20; and

a driving circuit that drives the plasma display panel.

79. (New) The manufacturing method for a plasma display panel of Claim 30, wherein in the electrode formation step, the electrodes made of the silver alloy are formed, by forming the silver alloy into a film by a sputtering method, and patterning the formed film.

80. (New) The manufacturing method for a plasma display panel of Claim 30, wherein in the electrode formation step, the electrodes made of the silver alloy are formed, by (a) forming a film containing the silver alloy and a glass frit, (b) patterning the formed film, and (c) baking the patterned film.

81. (New) The manufacturing method for a plasma display panel of Claim 30,

wherein in the electrode formation step, the electrodes made of the silver alloy are formed, by applying a paste containing the silver alloy and a glass frit in electrode shapes, and baking the applied paste.

82. (New) The manufacturing method for a substrate for use in a plasma display panel of Claim 47,

wherein in the etching step, the glass plate is etched by impregnating the surface of the glass plate with a liquid containing fluorine.

83. (New) The manufacturing method for a substrate for use in a plasma display panel of Claim 47,

wherein in the etching step, the glass plate is etched so that a concentration of metal ions that exist in a vicinity of a surface of the etched substrate is 1000ppm or less, the metal ions possessing reducing action on Ag ions.

84. (New) The manufacturing method for a substrate for use in a plasma display panel of Claim 48,

wherein in the etching step, the glass plate is etched so that a concentration of metal ions that exist in a vicinity of a surface of the etched substrate is 1000ppm or less, the metal ions possessing reducing action on Ag ions.

85. (New) The manufacturing method for a substrate for use in a plasma display panel of Claim 47,

wherein in the etching step, the glass plate is etched so that a total concentration

of tin with less than four valence electrons, manganese with less than four valence electrons, iron with less than two valence electrons, and indium with less than two valence electrons that exist in a vicinity of a surface of the etched substrate is 1000ppm or less.

86. (New) The manufacturing method for a substrate for use in a plasma display panel of Claim 48,

wherein in the etching step, the glass plate is etched so that a total concentration of tin with less than four valence electrons, manganese with less than four valence electrons, iron with less than two valence electrons, and indium with less than two valence electrons that exist in a vicinity of a surface of the etched substrate is 1000ppm or less.

87. (New) The manufacturing method for a substrate for use in a plasma display panel of Claim 47,

wherein the etching step is followed by a polishing step for polishing the surface of the etched substrate.

88. (New) The manufacturing method for a substrate for use in a plasma display panel of Claim 48,

wherein the etching step is followed by a polishing step for polishing the surface of the etched substrate.

89. (New) The manufacturing method for a substrate for use in a plasma display panel of Claim 53,

wherein in the deactivating step, the glass plate is processed so that a total concentration of tin with less than four valence electrons, manganese with less than four valence

electrons, iron with less than two valence electrons, and indium with less than two valence electrons that exist in a region of 5μm in depth from a surface of the substrate is 1000ppm or less.

90. (New) The manufacturing method for a substrate for use in a plasma display panel of Claim 54,

wherein in the deactivating step, the glass plate is processed so that a total concentration of tin with less than four valence electrons, manganese with less than four valence electrons, iron with less than two valence electrons, and indium with less than two valence electrons that exist in a region of 5μm in depth from a surface of the substrate is 1000ppm or less.

REMARKS

The amendments to the claims are to remove a multiple dependencies.

Newly drafted Claims 56-90 are within the scope of the original invention and do not add any new subject matter.

If the Examiner believes that a telephone interview will help further the prosecution of this case, he is respectfully requested to contact the undersigned attorney at the listed telephone number.

Very truly yours,

PRICE AND GESS

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VERSION WITH MARKINGS TO SHOW CHANGES MADE

The claims have been amended as follows:

6. (Amended) The plasma display panel of [any of Claims 1 to 5) Claim 1, wherein the first electrodes are constructed by forming each electrode on a transparent electrode film.

8. (Amended) The plasma display panel of [any of Claims 1 to 5] Claim 1, wherein the first electrodes are covered with a dielectric layer made of a dielectric glass material.

14. (Amended) The plasma display panel of [any of Claims 8 to 12] Claim 8, wherein the first electrodes are covered with a dielectric layer made of a dielectric glass material.

17. (Amended) The plasma display panel of [any of Claims 14 to 16] Claim 14, wherein the metal or the metal oxide that coats the surface of each Ag particle forms a layer with an average thickness in a range of 01 μm to 1μm inclusive.

18. (Amended) The plasma display panel of [any of Claims 14 to 16] Claim 14, wherein the first electrodes are covered with a dielectric layer made of a dielectric glass material.

21. (Amended) The plasma display panel of [any of Claims 19 and 20] Claim 19, wherein the first plate, or both the first plate and the second plate are glass plates.

23. (Amended) A display apparatus comprising:

the plasma display panel of [any of Claims 1, 3, 8, 10, 14, 19, and 20] Claim 1;

and

a driving circuit that drives the plasma display panel.

31. (Amended) The manufacturing method for a plasma display panel of [any of Claims 29 and 30] Claim 29,

wherein in the electrode formation step, the electrodes made of the silver alloy are formed, by forming the silver alloy into a film by a sputtering method, and patterning the formed film.

32. (Amended) The manufacturing method for a plasma display panel of [any of Claims 29 and 30] Claim 29,

wherein in the electrode formation step, the electrodes made of the silver alloy are formed, by (a) forming a film containing the silver alloy and a glass frit, (b) patterning the formed film, and (c) baking the patterned film.

34. (Amended) The manufacturing method for a plasma display panel of [any of Claims 29 and 30] Claim 29,

wherein in the electrode formation step, the electrodes made of the silver alloy are formed, by applying a paste containing the silver alloy and a glass frit in electrode shapes, and baking the applied paste.

48. (Amended) The manufacturing method for a substrate for use in a plasma display panel of [any of Claims 46 and 47] Claim 46,

wherein in the etching step, the glass plate is etched by impregnating the surface of the glass plate with a liquid containing fluorine.

49. (Amended) The manufacturing method for a substrate for use in a plasma display panel of [any of Claims 46 to 48] Claim 46,

wherein in the etching step, the glass plate is etched so that a concentration of metal ions that exist in a vicinity of a surface of the etched substrate is 1000ppm or less, the metal ions possessing reducing action on Ag ions.

50. (Amended) The manufacturing method for a substrate for use in a plasma display panel of [any of Claims 46 to 48] Claim 46,

wherein in the etching step, the glass plate is etched so that a total concentration of tin with less than four valence electrons, manganese with less than four valence electrons, iron with less than two valence electrons, and indium with less than two valence electrons that exist in a vicinity of a surface of the etched substrate is 1000ppm or less.

51. (Amended) The manufacturing method for a substrate for use in a plasma display panel of [any of Claims 46 to 48] Claim 46,

wherein the etching step is followed by a polishing step for polishing the surface of the etched substrate.

55. (Amended) The manufacturing method for a substrate for use in a plasma display panel of [any of Claims 52 to 54] Claim 52,

wherein in the deactivating step, the glass plate is processed so that a total concentration of tin with less than four valence electrons, manganese with less than four valence electrons, iron with less than two valence electrons, and indium with less than two valence electrons that exist in a region of 5μm in depth from a surface of the substrate is 1000ppm or less.

New Claims 56-90 have been added.